

REMARKS

Amendments to the Claims

Claim 1 has been amended to recite that the catalyst system, diluent, and one or more monomers are combined to form a single phase polymerization medium. Support for this is found in the specification at original paragraph 00193, which states “the polymerization is carried out where the catalyst, monomer, and diluent are present in a single phase.”

35 U.S.C. §112, second paragraph

Claims 16 and 17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims have been rejected as being of indefinite scope due to the use of the word “preferably”. The claims have been amended and it is requested that this rejection be withdrawn.

35 U.S.C. § 102(b)

Claims 1-5, 7-15, and 18-29 have been rejected under 35 U.S.C. § 102(b) as anticipated by Konig (US 4501865). This rejection is respectfully traversed for the following reasons.

Konig is cited for teaching a polymerization method comprising a hydrocarbon diluent in a stirred reactor where the polymerization medium is evaporated during polymerization.

What Konig actually teaches those skilled in the art is to add a component to a water and aqueous systems, is adding a liquid for “removing the polymerisation heat and for regulating the polymerisation temperature.” (col 4, lines 18-20). In the listing of liquids, Konig identifies fluoro-substituted hydrocarbons. Konig also states that these liquids should be immiscible with the reaction medium (col 4, lines 40-41). Thus, Konig specifically teaches a multi-phase polymerization medium – the identified temperature regulating liquids are not miscible with the catalysts and monomers present and fail to act as the recited diluent.

In order for a reference to fully anticipate a claim under 35 U.S.C. § 102, the reference must disclose each and every element of the claimed invention. As Konig fails to disclose each and every element of the claimed invention, and in fact teaches away from the

claimed invention, Konig fails to anticipate the invention as recited in the rejected claims. It is respectfully requested that this rejection be reconsidered and withdrawn.

35 U.S.C. § 103

Claims 6, 16-17, and 30-60 have been rejected under 35 U.S.C. § 103 as being obvious over Konig in view of Maeda et al (EP 0 713 883). This rejection is respectfully traversed for the following reasons.

Maeda is cited for teachings regarding cationic polymerization to obtain an isobutene polymer in a specific solvent system.

It is held that it would have been obvious to one skilled in the art to modify the polymerization process of Konig to use the polymerization conditions of Maeda, resulting in a change in catalysts, temperature and pressure for the vinyl polymerizations disclosed by Konig, as one would “expect that the use of polymers prepared by cationic polymerization as taught by Konig would be similarly useful and applicable to the polymerization processes taught in Kong.”

First, presumably, the above line quoted from the Office Action should have read that the polymerization as taught by Maeda would be useful and applicable to the process taught by Konig.

Second, Applicants vigorously disagree with this position for the following reasons.

To establish *prima facie* obviousness, there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations. Graham v. Deere

Konig is directed to polymerization of vinyl compounds, $\text{CH}_2=\text{CH}-$, a highly reactive compound partially due to the presence of the hydrogen on the 2nd carbon. Maeda is concerned with polymerization of isobutene, which has a fully unsaturated 2nd carbon and is less reactive than a vinyl compound. Additionally, Konig is directed to polymerization occurring in water or aqueous systems (col 4, lines 5-6); thus all disclosed polymerization temperatures are above 0°C.

Maeda is directed to a different type of monomer polymerization and the use of a completely different solvent – all of which drives the reaction temperature and pressure conditions.

Simply because both are polymerization reactions, one skilled in the art would not readily seek to substitute a set of operating conditions for one polymerization into another polymerization. Herein, to attempt to impose the operating conditions of Maeda onto the polymerization reaction of Konig would raise the following questions/issues:

would the desired reactions of Konig actually occur in the solvents of Maeda?

would the below freezing operating conditions of Maeda negatively affect the aqueous solvent of Konig?

if the reaction temperature of Konig is reduced to below freezing, is there any further need to include the heat removing liquid as taught by Konig?

Thus, even if one skilled in the art were to substitute the conditions of Maeda in the polymerization of Konig there is no reasonable expectation of success and the combination of teachings as set forth in the rejection will more than likely result in a destruction or elimination of the principal teaching by Konig regarding heat removing hydrofluorocarbon – the very teaching relied upon for rejection of the present claims.

Thus, as the combined references fail to establish the three necessary elements of *prima facie* obviousness, it is respectfully requested that the rejection be reconsidered and withdrawn.

In light of this amendment, all of the claims now pending in the subject patent application are allowable. Thus, the Examiner is respectfully requested to allow all pending claims.

Respectfully submitted,

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